



GREG STEINBRECHER—THE TECH

MIT Students for Israel (MITSi) hosted Danielle Blumenstyk and Noa Ouziel on Oct. 7 for an educational discussion on the experience of women in the Israeli Defense Forces. Blumenstyk and Ouziel are representatives of the StandWithUs organization, a pro-Israel group that aims to educate the world about Israel and related issues.

## UA Summaries of Task Force Recs Generate Hundreds of Student Votes

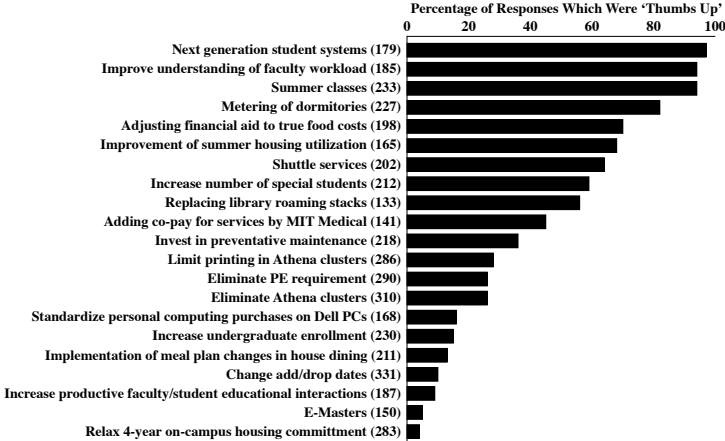
By Divya Srinivasan  
STAFF REPORTER

Several hundred students voted online on Planning Task Force recommendations based on summaries posted by the Undergraduate Association. The UA selected the 22 most important recommendations, summarized them on their website, and allowed students to vote them up or down and enter anonymous feedback.

The addition of summer classes was the most popular by net positive votes, and earlier add/drop dates was the least. The UA will present a 38-page report with result summaries and implementation suggestions to the Senate for approval tonight. It will then be circulated to key decision makers in the administration next week.

To effectively evaluate student sentiment, the UA divided the 22 recommendations into seven general categories: academic education, administrative/HR benefits, administrative processes, administrative procurement, academic space, revenue enhancement, and student life. Topics ranged from instituting co-pay for services at MIT Medical to eliminating the PE requirement. The relevant UA committees then sum-

### Student Opinions on Task Force Recommendations



SOURCE: MICHAEL A. BENNIE, UA PRESIDENT

The figure lists the number of votes for each suggestion and plots the percentage of the votes in favor. The only suggestion on the website not included is “Freshman Programs” because there was a misstatement in the UA summary.

marized these 22 recommendations to help students extract the essence from the proposal and have their voices heard.

There were “a lot more students

Task Force, Page 12

### In Short

A students-only flu clinic this Thursday, Oct. 15 will offer seasonal flu vaccines in the Student Center beginning at noon. The vaccine will protect against the most common variety of seasonal flu but not against swine flu (influenza A subtype H1N1). Because of a seasonal flu vaccine shortage, additional clin-

ics planned at graduate dormitories have been deferred, MIT Medical said in a press release. MIT has not yet received shipments of the H1N1 vaccine. For more, see <http://med-web.mit.edu/flu/>.

Send news information and tips to [news@the-tech.mit.edu](mailto:news@the-tech.mit.edu).

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## Chemistry Graduate Student Is Dead after Collapse in Marthon

By Daniela Cako  
STAFF REPORTER

Peter N. Curtin, 23, a graduate student in Course V, died Saturday after collapsing at the 25-mile mark in the Baltimore Running Festival Marathon at around 11:20 a.m. He was immediately taken to the Union Memorial Hospital where he was pronounced dead at 1:11 p.m., hospital spokeswoman Debra Schindler told *The Baltimore Sun*.

Baltimore city fire spokesman Kevin Cartwright said Curtin had a body temperature of 107 or 108 degrees and was in cardiac arrest on the way to the hospital. Lee Corrigan, the race organizer, told the *Sun* that the race had 250 doctors and nurses to assist during the course. An autopsy to determine cause of death is scheduled for next Saturday.

“We are heartbroken about it and it puts a sad note on an otherwise great day for Baltimore,” Corrigan told the *Sun*. “Our hearts go out to him and his family.”

Curtin graduated from Princeton and started at MIT last fall. He was a TA for last fall’s offering of 5.112 (Principles of Chemical Science). Curtin was working under Chemistry Professor Daniel G. Nocera and recently received the National Defense Science and Engineering Graduate Fellowship. He was also conducting research on the synthesis of ratiometric chemosensing quantum dots for the lab of Chemistry Professor Moungi G. Bawendi.

“This is truly a tragedy,” said Marc Kastner, Dean of the School of Science to the MIT News Office. “Peter was a gifted member of the MIT community, and our thoughts are now with his family.” The Princeton University Chapel will hold a memorial service on Oct. 25.

Curtin’s death comes almost a year after the death of Kjell A. Tovander ’09 under similar circumstances. Tovander collapsed in the Route 66 Marathon in Tulsa, Oklahoma and died in the hospital.

## Algorithms Text CLRS Updated to 3rd Edition

New Edition Adds a Chapter on Multithreading

By Vinayak Ranade

The 3rd edition of *Introduction to Algorithms* by Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein, better known at MIT as “CLRS” or “the 6.046 textbook,” came out last month. Leiserson and Rivest are professors in Course VI. In addition to 100 new exercises and 28 new problems, the new edition features a whole new section on multithreading.

In an interview with the MIT Press, Leiserson explained, “Multithreading has become a really hot topic in Computer Science because of the wide availability now

of parallel computers. It’s hard to buy a single processor computer now. That wasn’t the case when we published the last edition. [...] suddenly there’s a huge need for people to understand how to program these multicore processors.”

The new multithreading chapter covers some key ideas from Leiserson’s research in the area of parallelism, such as the ratio between work (the amount of time a serial program takes to execute) and span (the critical pathway of the computation). The chapter also covers topics like race conditions and reli-

CLRS, Page 10

## East Campus Produce Market Will Hibernate in Stata



YUANYU CHEN—THE TECH

Customers examine a large variety of produce offered at the East Campus produce stand on Tuesday. The MIT produce market will move to its winter location on the first floor of the Stata Center on Oct. 27.

The MIT produce market will move to the first floor of the Stata Center on October 27th. The market, which started last spring, runs in the East Campus courtyard every Tuesday from 12 to 6. Students and faculty from around campus come to the market for fresh produce. “I get everything here,” said Elena C. Garza, an administrative assistant at MIT. The fruit is good, she said, and “really cheap.”

The stand is a convenience for many students. “It certainly gets me out of going to the grocery store,” said Duaa H. Mohammad G. Despite the move, most students said they would continue to shop at the market. “It’s closer than anything else,” said Andrew L. Geng ’11. The market, which sells fresh produce imported from around the country, will continue with the same operating hours through the winter. It will return to the East Campus courtyard in the spring.

—Jessica J. Pourian

# WORLD & NATION

## Editorial Dispute Threatens Chinese Magazine

By David Barboza

THE NEW YORK TIMES

SHANGHAI

Caijing, a respected Chinese business magazine, has been thrown into turmoil after a dispute over its editorial direction recently led to the resignation of 11 high-ranking executives and nearly 70 other workers from the business staff, according to people close to the magazine.

The magazine's general manager, its top advertising executive and the head of its conference unit are among those who have submitted resignation letters in recent weeks. And Hu Shuli, considered the most powerful business editor in China, may be forced to resign from the magazine, which is based in Beijing.

The dispute threatens to dismantle one of the country's leading media properties, a thriving magazine published twice a month that specializes in investigating government corruption and corporate fraud. Caijing also has partnerships with The Wall Street Journal and Reuters.

## Travel Cost-Cutting Is the New Normal

By Joe Sharkey

THE NEW YORK TIMES

As business travel slowly comes back, company travel departments are sending out a strong message:

Work harder. Fit more productivity into each trip. Become a lot more accessible on the road – even on airplanes, using new in-flight wireless services.

And, oh yeah, do it more cheaply.

What lies ahead for the grunts on the road as the long slump in business travel eases? Air travel has already become less convenient, as airlines have significantly cut capacity. According to the airline data company OAG, domestic capacity in October was down 21 percent from October 2000 – roughly the equivalent of an entire major airline disappearing.

Well, get used to it. Invoking the current business travel buzz phrase, prepare for the “new normal,” says Charles Petrucelli, the president of the American Express Global Travel Services division, which managed \$29.1 billion in worldwide corporate travel sales last year.

## Tax Day Looms for Holders of Offshore Accounts

By Lynnley Browning

THE NEW YORK TIMES

Many Americans dread April 15, the deadline for filing their income tax returns. But some well-heeled people are trembling over another looming tax day: Oct. 15.

Thursday is the deadline for Americans to come clean about the money they have hidden offshore, in places like Swiss bank accounts. No one can say with certainty how much money is out there – the accounts are secret – but the hoard may be tens of billions of dollars.

Several thousand wealthy people have come forward, hoping to avoid large fines or possibly even prison. But many others are still weighing their options. The choice is stark: They can confess and pay the penalties, or gamble that they will not get caught. With the deadline only days away, tax lawyers say they are being inundated by anxious clients.

“We’re seeing a flood of people,” said Scott D. Michel, a tax lawyer in Washington. His firm, Caplin & Drysdale, has 350 clients who are preparing to report their offshore accounts to the Internal Revenue Service. The firm has 14 lawyers handling their cases, one of which involves a tax bill of hundreds of millions of dollars.

The deadline is part of a broad crackdown on Americans who use offshore accounts to evade federal taxes. As part of the effort, U.S. authorities have challenged the long tradition of banking secrecy in Switzerland, and, in particular at UBS, that nation's largest bank.

# Congress Splits on Taxing High-Cost Health Plans

By David M. Herszenhorn and Robert Pear

THE NEW YORK TIMES

WASHINGTON

A proposed tax on high-cost, or “Cadillac,” health insurance plans has touched off a fierce clash between the Senate and the House as they wrestle over how to pay for legislation that would provide health benefits to millions of uninsured Americans.

Supporters, including many senators, say that the tax is essential to tamping down medical spending and that over 10 years it would generate more than \$200 billion, nearly a fourth of what is needed to pay for the bill.

Critics, including House members and labor unions, say the tax would quickly spiral out of control and hit middle-class workers, people more closely associated with minivans than Cadillacs.

The tax, which is included in the bill that is to be voted on Tuesday by the Senate Finance Committee, is the one of the few remaining proposals under consideration by Congress that budget experts say could lead directly to a reduction in health

care spending over the long term, by prompting employers and employees to buy cheaper insurance. Whether it remains in the bill is emerging as a litmus test of the commitment by President Barack Obama and his party to slowing the steep rise of medical expenses.

It is also a prime example of the major differences still to be bridged by Democrats as the legislation advances to full debate in both houses.

Under the Finance Committee bill, the tax would be imposed beginning in 2013 on health plans with total premiums exceeding \$8,000 for individuals and \$21,000 for families. It would be paid by insurers, who would be expected to pass along the cost to customers.

Critics say that would mean an increase in premiums or in out-of-pocket expenses for employees, raising medical costs for individuals and families.

Supporters say the more likely prospect is that employers will take steps to avoid the tax, putting pressure on insurers to offer cheaper coverage and slowing the rise in medical costs for everyone. That in turn will mean higher wages, they say,

because employers will be spending less on health benefits.

In a preliminary estimate, the Congressional Joint Committee on Taxation has said that in 2013, 14 percent of family health policies and 19 percent of individual policies would be hit by the tax. By 2019, 37 percent of family policies and 41 percent of individual policies would face it.

The proportion of people being subjected to the tax would rise over time because although the initial thresholds for the tax would increase with inflation, premiums are expected to continue to rise at an even faster clip.

Many Democratic senators, led by the Finance Committee chairman, Max Baucus of Montana, like the idea of the tax, and Obama embraced it in his speech to Congress on Sept. 9.

“This reform will charge insurance companies a fee for their most expensive policies, which will encourage them to provide greater value for the money,” the president said then. “This modest change could help hold down the cost of health care for all of us in the long run.”

# Market Attack Shows Pakistani Militants’ Tenacity

By Pir Zubair Shah and Jane Perlez

THE NEW YORK TIMES

ISLAMABAD, PAKISTAN

Militants on Monday launched their fourth assault in a week on strategic targets across Pakistan, this time with a suicide car bombing against a military vehicle in a crowded market in the northwest, killing 41 people and wounding dozens more.

The bombing took place in the Shangla District, an area within the Swat Valley but under separate administration. The Pakistani military had declared the valley cleared of militants after an offensive this summer and announced that the Taliban were a shattered force.

Since the Swat campaign and the death of the Pakistani Taliban leader, Baitullah Mehsud, in a U.S. drone strike in August, the militants have

been relatively quiet. But the attack on Monday showed they could still shake the country with serious terrorist attacks in a short period over a wide geographic spread.

It was the latest in a series clearly intended to prove the Taliban's resilience, to exact revenge for government and U.S. strikes, and to discourage the Pakistani military from expanding its campaign into South Waziristan, the heartland of the Taliban in Pakistan.

The Pakistani Air Force has been pounding areas of South Waziristan in the last day, a prelude to a possible ground campaign, military officials said. Hundreds are reported to have fled in recent days in expectation of an attack.

On Saturday, in one of their boldest gambits, 10 militants dressed in army fatigues and armed with automatic weapons, mines, grenades

and suicide jackets breached the perimeter of the army headquarters in Rawalpindi in a raid that left 23 people dead and set off a 20-hour siege.

The standoff ended Sunday morning with the rescue of 39 hostages by army commandoes, but showed that even a building of the intelligence wing of the army was vulnerable to Taliban attacks. On Monday, the Pakistani Army announced that it had a telephone intercept showing that the Tehrik-e-Taliban, the umbrella organization of the Pakistani Taliban, was responsible for the assault.

The group's deputy, Wali ur-Rehman, was heard telling a colleague by phone after the raid had begun to pray for the success of the operation, the army spokesman, Maj. Gen. Athar Abbas, said at a news conference.

# WEATHER

## Grab Your Blanket

By Angela Zalucha

STAFF METEOROLOGIST

As winter approaches, the days and nights grow colder and colder as the sun's position above the horizon gets lower and lower. At night, the temperature is also dependent on the presence of clouds. On a clear night, radiation from the earth's surface escapes efficiently to space. On a cloudy night, the clouds act as a blanket that traps radiation. Tonight, as the clouds clear out, temperatures will plummet into the upper 30s°F, the coldest night we have seen yet this fall. Temperatures this week will be generally colder than average, as cold air from the north dominates our region.

Rain showers will end this afternoon, followed by cold, dry weather Wednesday and Thursday. The chance for rain returns Friday, with continued below average temperatures.

### Extended Forecast

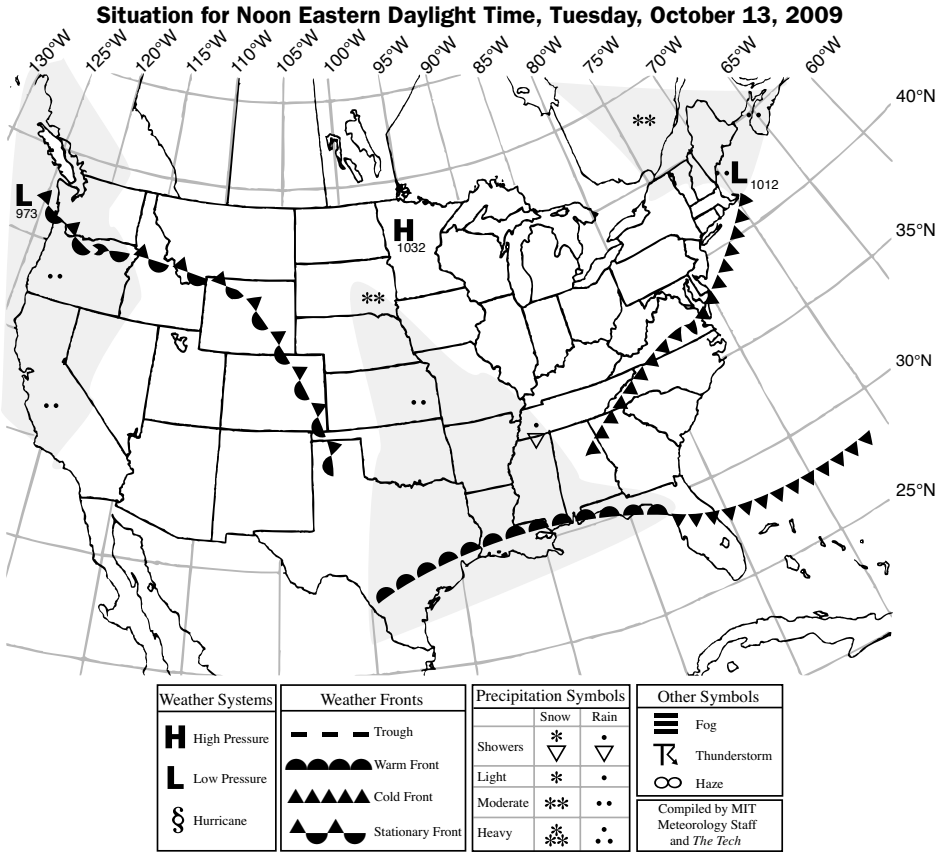
**Today:** Rain showers in the morning, then clearing. High 57°F (14°C). Northwest winds 10 to 15 mph.

**Tonight:** Clear. Low 38°F (3°C). Northwest winds 10 to 15 mph.

**Tomorrow:** Mostly sunny. High 52°F (11°C). Northwest winds 10 to 15 mph.

**Thursday:** Partly sunny. High 48°F (9°C).

**Friday:** Cloudy with a chance of rain. High 47°F (8°C).



# Russia-German Pipeline Sparks Fears in Eastern Europe

By **Andrew E. Kramer**  
*THE NEW YORK TIMES*

MOSCOW  
With an ambitious new pipeline planned to run along the bed of the Baltic Sea, the Russian natural gas giant Gazprom is driving a political wedge between Eastern and Western Europe.

While the Russian-German pipeline offers clear energy benefits to Western Europe, Central and Eastern European leaders fear it could lead to a new era of gas-leveraged Russian domination of the former Soviet bloc. The project has divided members of the European Union that had vowed to act collectively to protect their security.

Currently, Russian gas has to be piped through Eastern Europe to reach Western Europe. If Russia shuts off the gas to pressure a neighbor in the East, it is felt in the more powerful, wealthier countries to the west, where it touches off loud protests.

The new Nord Stream pipeline will change that equation. By traveling more than 750 miles underwater, from Vyborg, Russia, to Greifswald,

Germany, bypassing the former Soviet and satellite states, it will give Russia a separate supply line to the west.

As a result, many security experts and Eastern European officials say, Russia will be more likely to play pipeline politics with its neighbors.

“Yesterday tanks, today oil,” said Zbigniew Siemiatkowski, a former head of Poland’s security service.

That is not the way the Russians present it. Gazprom, which supplies Europe with 28 percent of its natural gas, says the \$10.7 billion project is commercial, not strategic.

Matthias Warnig, Nord Stream’s chief executive and a former East German, said Eastern Europe’s fears are unfounded. “The wall broke down 20 years ago,” he said. Europe needs additional natural gas to compensate for declining output from the North Sea, he said, and Russia is the best place to get it.

European officials have portrayed the project as one that helps unite Europe and enhance its collective energy security. The European

Commission and European Parliament endorsed the pipeline as early as 2000 and both reconfirmed their commitments as recently as 2006. “As far as common energy policy exists, we are part of it on the highest priority level,” said Sebastian Sass, Nord Stream’s main representative to the European Union.

But officials in Central and Eastern Europe fear that while profits from the pipeline, a joint venture between Gazprom and a trio of German and Dutch companies, will flow to Russian suppliers and German utilities, the long trod-upon countries once under the Soviet umbrella will become more vulnerable to energy blackmail.

Such tactics are hardly without precedent. A Swedish Defense Ministry-affiliated research organization has identified 55 politically linked disruptions in the energy supply of Eastern Europe since the breakup of the Soviet Union.

Until now, Russia’s use of natural gas as a foreign policy tool has been limited to short embargoes, at least in part, analysts say, because it is so blunt a club.

# Ads Are Taking On A Rosier Hue

By **Stephanie Clifford**  
*THE NEW YORK TIMES*

The American economy is back or so some of the country’s biggest advertisers are saying in new campaigns.

It may be a sign that the recession is ending, or it may be a sign that consumers are sick of hearing about it.

While economists and investors study housing starts and gross domestic product predictions to measure economic vibrancy, General Electric, Bank of America and other companies are using commercials to proclaim that America’s future is bright. And that may be something of a self-fulfilling prophecy.

“These are big companies demonstrating market leadership that will help shape public opinion,” Robert Scalea, chief executive for North America at the Brand Union, a branding firm that is part of the WPP Group, said. “Marketing is always a reflection of societal values, and many times, for smarter marketers, is a driver of them.”

The ads do not equivocate. “The American renewal is happening right now,” GE spots say. Bank of America closes its commercial with: “America.

Growing stronger every day.” Ads for Levi’s quote Walt Whitman’s “America” and “Pioneers! O Pioneers!”

Marketers, by definition, sell things, but they are sometimes able to capture the mood of a country as they do so. Last fall, when stalwart firms like Lehman Brothers disappeared almost overnight, companies emphasized their trustworthiness and lengthy histories in commercials. In the spring, when it seemed as if the recession would go on endlessly, companies compared this era to the Depression and discussed how they had weathered that period. Now, marketers’ emphasis on American pride and an economic comeback suggests that the air is starting to crackle with optimism.

On a more functional level, once banks like Bank of America begin lending again, corporations like General Electric begin hiring again and everyone begins advertising again, the economic recovery will have some fuel.

But a message that economic woes are over may seem insensitive to some viewers. “I was looking at the GE one, and my first reaction

was, everyone in there is smiling and happy, and it’s a very bright scene,” said Timothy B. Heath, a marketing professor at the business school of Miami University of Ohio. “It seemed almost too cheery, given where a lot of people are right now.”

Bank of America’s spot begins with lights turning on all over the country in quick succession – at museums, at stadiums, in small towns. “Every business day, Bank of America lends nearly \$3 billion,” the narrator says, “in every corner of the economy.” It is the first spot in an estimated \$40 million campaign that will run through early next year and include more television commercials, along with print and online ads.

The spot was completed this summer, but Bank of America held it until about two weeks ago.

“We really waited for the proper time to put it on air, and we believe the time is now,” said Meredith Verdone, brand, advertising and research executive for Bank of America. She checked with the bank’s economists, and public policy and public relations executives to make sure they thought a recovery was beginning, she said.

# Renewed Attention for Longstanding California Water Issues

By **Jennifer Steinhauer**  
*THE NEW YORK TIMES*

LOS ANGELES  
In a sign that a deal addressing California’s longstanding water supply problems may be near, Gov. Arnold Schwarzenegger convened a special session of the Legislature on Monday to revisit a package of water bills.

A three-year drought, federal environmental regulations restricting water flows and the fixation of Schwarzenegger – who has said he is determined to leave a mark on one of the state’s most intractable problems before leaving office next year – have heightened the urgency for an agreement.

Schwarzenegger, a Republican, had threatened to veto some 700 bills if lawmakers did not reach a water deal by Sunday, the end of the regular legislative session. But he backed off that threat on Monday, citing progress as lawmakers and members of his staff hunkered down to work on the issue.

The special session is expected to last until the end of the week, and both Republicans and Democrats expressed optimism on Monday that a deal was in the offing.

“While we still need to hammer out remaining issues,” Darrell Steinberg, a Democrat and Senate president pro tem, said in a statement, “we are on the verge of the most comprehensive advance on water in California in decades. We’ve made significant breakthroughs on many of the sticking points that have plagued past attempts to stabilize the state’s water supply.”

The negotiations are focused on repairing the state’s fragile water ecosystem, unleashing new water supplies and increasing water conservation throughout the state. More specifically, negotiators hope to seal a deal that would make equal the goals of restoring the Sacramento-San Joaquin River Delta – a collection of channels, natural habitats and islands at the confluence of the Sacramento and San Joaquin rivers that is a major source of the state’s drinking water – and increasing the supply of water to residents, businesses and farms.

State officials say the restoration of the delta, as envisioned in the negotiations, would be the largest environmental restoration project in the United States, surpassing the effort under way in the Florida Everglades.

But the battle over how to distribute California’s water is generations old – it was Mark Twain who was believed to have said, “Whiskey is for drinking; water is for fighting over” – and when it comes to water legislation, close to done never means done. In the delta alone, myriad efforts have sought to change how water flows and to whom, including a package of five policy and bond bills that never made it to a vote in the Democratic-controlled Legislature this year.

Yet many factors have made the need to fix California’s water system problems all the more pressing.

The drought has led to water restrictions and increased prices for water around the state. And along with the drought, a federal order last year forcing water authorities to curtail the use of large pumps in the Sacramento-San Joaquin Delta to help preserve dying smelt has reduced water flows to agriculture and resulted in dust-bowl-like conditions for many of the state’s farms. In 2008, over 100,000 acres of the 4.7 million acres in the Central Valley were left unplanted, and experts expect that number to grow this year.

## Credit Vise Tightens for Small And Midsize Businesses

By **Peter S. Goodman**

*THE NEW YORK TIMES*

Many small and midsize American businesses are still struggling to secure bank loans, impeding their expansion plans and constraining overall economic growth, even as the country tentatively rises from its recessionary depths.

Most banks expect their lending standards to remain tighter than the levels of the last decade until at least the middle of 2010, according to a survey of senior loan officers conducted by the Federal Reserve Board.

The enduring credit squeeze appears to reflect an aversion to risk among lenders confronting great uncertainty about the economy rather than any lingering effects of the panic that gripped financial markets last fall, after the collapse of the investment banking giant Lehman Brothers.

Bankers worry about the extent of losses on credit card businesses as high unemployment sends cardholders into trouble. They are also reckoning with anticipated failures in commercial real estate. Until the scope of these losses is known, many lenders are inclined to hang on to their dollars rather than risk them on loans to businesses in a weak economy, say economists and financial industry executives.

“The banks are just deathly afraid,” said Sam Thacker, a partner at Business Finance Solutions in Austin, Texas, which helps small businesses line up financing. “I don’t see commercial banks coming back to the market anytime soon.”

In the long view, tighter loan standards seem healthy after a terrible crisis attributed in part to years of recklessly lenient lending. But some economists worry that bankers have overshot the boundaries of a healthy reaction, as even strong companies are finding it difficult to borrow.

## Canada Seeks Redress On U.S. Hog Labeling Law

By **Clifford Krauss**

*THE NEW YORK TIMES*

Ratcheting up a trade dispute with the Obama administration, Canada is asking the World Trade Organization to rule against an American food-labeling law that it claims is helping to destroy much of its hog-farming industry.

The dispute concerns a U.S. rule requiring that food products be labeled by country of origin. The Obama administration denies that the labeling policy is an act of protectionism, even though it is driving American pork producers to decrease purchases of Canadian hogs, traditionally about 7 percent of the pork consumed in the United States.

The reduction in imports has brought some short-term relief to American hog farmers suffering from high feed prices and low domestic and export sales. The industry says sales have been hurt by unfounded consumer concerns about catching swine flu from eating pork.

The new regulations require American companies to track and label the country of origin of meats and produce at all stages of production and sale, except at restaurants. Some consumer and food-safety groups like the regulations as a means of giving consumers more information about the food they buy. But other experts say the regulation has created cumbersome record-keeping problems that effectively favor domestic producers.

## Cleansing the Air at The Expense of Waterways

By **Charles Duhigg**

*THE NEW YORK TIMES*

MASONTOWN, PA.

For years, residents here complained about the yellow smoke pouring from the tall chimneys of the nearby coal-fired power plant, which left a film on their cars and pebbles of coal waste in their yards. Five states — including New York and New Jersey — sued the plant’s owner, Allegheny Energy, claiming the air pollution was causing respiratory diseases and acid rain.

So three years ago, when Allegheny Energy decided to install scrubbers to clean the plant’s air emissions, environmentalists were overjoyed. The technology would spray water and chemicals through the plant’s chimneys, trapping more than 150,000 tons of pollutants each year before they escaped into the sky.

But the cleaner air has come at a cost. Each day since the equipment was switched on in June, the company has dumped tens of thousands of gallons of wastewater containing chemicals from the scrubbing process into the Monongahela River, which provides drinking water to 350,000 people and flows into Pittsburgh, 40 miles to the north.

## 2 U.S. Social Scientists Share Nobel in Economics

By **Louis Uchitelle**

*THE NEW YORK TIMES*

The Nobel Memorial Prize in Economic Sciences was awarded on Monday to two American social scientists for their work in describing the numerous relationships within a company or among companies and individuals that shape market behavior.

The prize committee cited Elinor Ostrom, 76, at Indiana University, and Oliver E. Williamson, 77, at the University of California, Berkeley, for work done over long careers. Ostrom is the first woman to receive the economics prize in the 41-year history of the award. She is a political scientist, not an economist, and in honoring her, the judges seemed to suggest that economics should be thought of as an interdisciplinary social science rather than a pure science governed by mathematics.

“This award is part of the merging of the social sciences,” said Robert J. Shiller, a Yale University economist. “Economics has been too isolated and too stuck on the view that markets are efficient and self-regulating. It has derailed our thinking.”

The Nobel judges in Stockholm notified the winners when it was 6:30 a.m. in Bloomington, Ind., where Ostrom lives, and 3:30 a.m. in California. Williamson’s grown son, home on a visit, answered the ringing telephone and passed the call to his father, awakening him. Ostrom said she, too, was awakened by the call and afterward made herself a cup of coffee in the kitchen. Both expressed surprise that the award had come their way. They will split \$1.4 million in prize money.



# OPINION



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## Corrections

An Oct. 9, 2009 figure credit said it measured “the market value of MIT’s endowment in real dollars (not inflation-adjusted).” The market values are nominal (not inflation-adjusted). The market value in real dollars was not shown.

# The Real Danger of Qom

## It May Already Be Too Late To Prevent a Nuclear Iran

Keith Yost

On September 25, at the Group of 20 summit in Pittsburgh, President Obama revealed to the world that Iran has been covertly constructing an uranium enrichment facility outside the holy city of Qom. Flanked by his allies Gordon Brown and Nicolas Sarkozy, Obama demanded that Iran disclose the entirety of its nuclear activities “or be held accountable.”

As a diplomatic play it fell short. France and Britain, though in agreement with the president over the need to pressure Iran, were critical of the move — they had wanted Obama to deliver the ultimatum in the much more dramatic venue of the U.N. Security Council, where the president had spoken just days earlier. China, who wields veto power over any U.N. sanctions, was un-swayed by the revelation and continues to oppose substantial action. And Iran, as is seemingly its custom when asked to respond to anything a Westerner has said, took great umbrage and dismissed the U.S. intelligence coup as half lies and half misconceptions. Among the key actors the United States hoped to woo, only Russia seemed to have been stirred to action by the news, and this new-found support for getting tough with Iran came only after months of U.S. concessions and kowtowing.

More to the point, the outrage over the Qom facility is misplaced, or at very least mis-prioritized. As an indication of Iran’s ill intentions, Qom adds to a large and growing body of evidence. But as a component of the Islamic Republic’s weapons program, Qom amounts to very little.

The most recent International Atomic Energy Agency (IAEA) report on Iran’s nuclear activities (issued August 28, 2009) places things in the proper context. As of July 31, Iran has stockpiled 1,508 kilograms of 3.5 percent enriched uranium hexafluoride (UF6). It has 4,592 centrifuges in operation, with an additional 3,716 installed and being brought online. It has tested long-range solid fuel missiles, experimented with the explosives needed

to create implosion-type nuclear weapons, and refused to grant IAEA inspectors access to critical facilities. In my personal judgment, Iran’s stockpiles, facilities, and technical sophistication are sufficient to produce a nuclear weapon within three to five months.

Let me explain the math behind this assessment, starting with the fissile material required to produce a nuclear weapon.

A nuclear weapon requires a critical mass of fissile material in order to achieve detonation. Using a bare sphere of 90 percent enriched uranium metal (the 90 percent indicates the fraction of U-235, a fissile isotope of uranium), a critical mass is just a tad less than 54kg. In practice, nuclear weapons are constructed with a neutron-reflecting tamper that reduces the amount of fissile material necessary for a critical mass. Depending on the material of the tamper’s construction (U-238 and beryllium being two common choices) and the sophistication of design, the amount of uranium needed to achieve a critical mass can thus be reduced to 15-21kg.

To our knowledge, Iran does not currently possess any uranium with the concentration of U-235 necessary to fuel a bomb. The IAEA limits Iran to uranium with a 5 percent concentration of U-235, and Iran’s existing stockpiles are in the area of 3.5 percent. To take this 3.5 percent material and convert it to weapons grade, further enrichment is required.

Iran’s enrichment capabilities are not impressive from a technical perspective. Enrichment capacity is typically measured in SWU, or “Separative Work Units.” SWU are a complex measurement of the ability to perform isotopic enrichment. In a given year, a best-in-class centrifuge can provide hundreds of SWU. A Pakistani centrifuge may produce 5–7 SWU per year. An Iranian centrifuge is designed to provide roughly 2 SWU per year, and in practice provides only about half a SWU due to poor operation, according to IAEA observations.

However, what Iran may lack in technical prowess it has made up for in sheer numbers. Half a SWU is not a lot, but many hands make

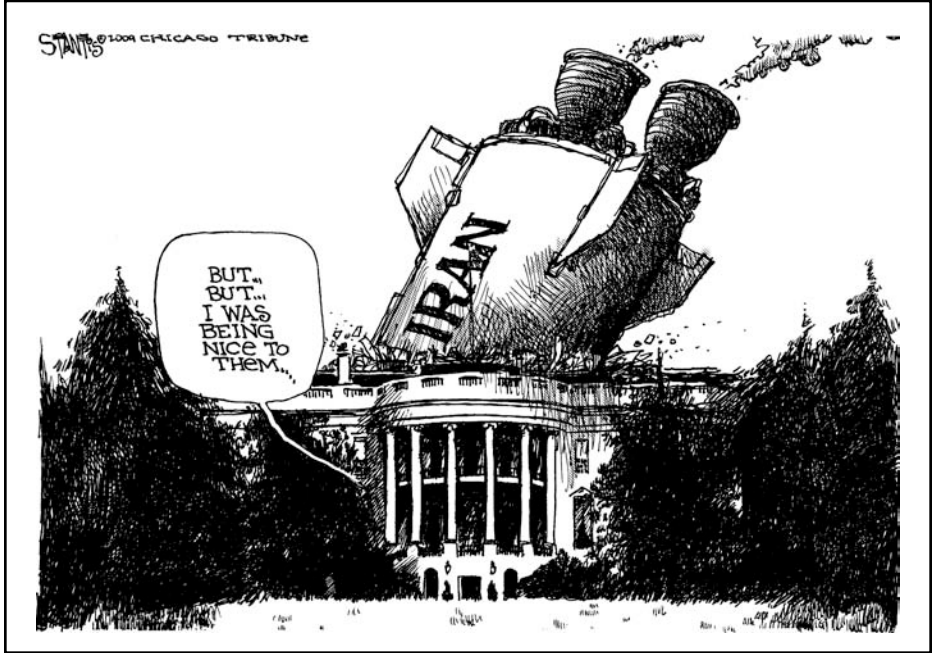
light work. Converting its stockpile of 3.5 percent enriched uranium into 15 to 21 kilograms of 90 percent enriched uranium would require roughly 80–130 days of separative work using just the 4,592 centrifuges currently in operation. It would take additional time to reconfigure the centrifuges (centrifuges are organized into series called “cascades” and a cascade that is optimized to enrich natural uranium to 3.5 percent is not optimized to enrich 3.5 percent to 90 percent), as well as to convert the uranium hexafluoride into uranium metal, but these delays would not be significant — Iran could come very close to optimal performance just by reconfiguring two or three cascades and making minor modifications to the rest.

In the time it will take Iran to complete its Qom facility (six months we’re told), it will already be dangerously close to a nuclear weapon. If given half a year to bring the remainder of its installed centrifuges online and continue adding to its low-enriched stockpile, Iran will be 1-2 months away from a nuclear device (the uncertainty primarily due to whether or not it continues enriching to 3.5 percent or if it continues up to the 5 percent IAEA limit). No improvement in operating capabilities, no new centrifuges, and no secret facilities are needed — if Iran merely continues down the road it is on, by April of next year it will be able to produce a bomb faster than diplomats can react.

There is a false sense of security in thinking that so long as the IAEA can visit all of Iran’s enrichment facilities, that we can prevent Iran from going nuclear. It’s true, in a sense, after all. We could, if we wanted to, respond to a removal of inspectors by promptly bombing Iran’s facilities, and thus deny them the ability to use declared facilities to develop nuclear weapons. What makes this sense of security false is that it is unlikely we would actually respond this way. Suppose that tomorrow Iran tells the IAEA to pack up and leave. What do you imagine our response to be? Unless the American public has been prepared and the diplomatic table has been set, retaliatory strikes are just not in the cards — it’s more likely we’ll see something similar to North Korea, where sanctions and talking are the order of the day.

This is what makes a pre-occupation with the Qom facility so dangerous. Iran could give the U.S. everything it demands, up to and including scrapping the facility entirely, and at the end of the day it would still have a nuclear program that goes beyond what the U.S. is willing to tolerate.

On Iran, Obama has much more room to maneuver than his predecessor. He’s better liked abroad, has more political capital at home, and Iran’s recent unrest makes them vulnerable. He has the opportunity to build a credible deterrent to Iranian proliferation by organizing sanctions against Iran’s nuclear status quo and by preparing military responses to potential escalations of Iran’s misconduct. But in order to take advantage of this opportunity, Obama must not let the narrative of Iran’s program revolve around the Qom facility alone. Proliferation will not be stopped merely through a reactionary preservation of the status quo — unless a real reversal is achieved, and soon, the mullahs will have their bomb.



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# Obama’s Peace Prize — Political Posturing?

Erasmus K. zu Ermgassen

Theodore Roosevelt became the first U.S. president to be awarded the Nobel Peace Prize for negotiating the end of the 1904 Russo-Japanese war, in which 130,000 people died. Woodrow Wilson was similarly rewarded for his role in founding the League of Nations in 1919. Now, Barack Obama has become the third president of the U.S. to be awarded the Nobel peace prize — for his “extraordinary efforts to strengthen international diplomacy and cooperation between peoples.” Spot the difference? Roosevelt and Wilson actually did something constructive (or prevented the destructive), but Obama has been applauded for his “efforts” — precisely because he hasn’t actually done anything yet.

Obama is little over 8 months into his presidency, in which time he has not yet closed Guantanamo Bay, has had little impact on the situation in Afghanistan, has not yet acted on climate change, has spoken about nuclear disarmament, and has postured about a peace process for the Middle East. No one would have expected all these commendable plans to have been completed 8 months into a possible 8 year tenure — so why has the Nobel committee decided to reward him now? They claim it is meant

as an encouragement, sort of like a Norwegian thumbs-up.

When Alfred Nobel stipulated in his will the conditions of the peace prize bearing his name, he selected the Norwegian government to award the prize because he felt they would be less likely to make politically motivated choices. Unfortunately, Obama’s prize is not so much an encouragement as it is politically motivated. He appears to have won for little more than not being George W. Bush, who, of course, was immensely unpopular internationally. Obama’s nomination for the award actually came only 12 days into his presidency. They clearly cannot be acknowledging accomplishment.

Despite all the optimism about what the Obama presidency symbolizes, Obama’s international agenda is not a principally humanitarian effort. Rather, it is a politically motivated collection of policy. For example, the U.S. could safely reduce its number of nuclear weapons from the current excess of 10,000 without reducing its international might. Some degree of disarmament makes financial and logistical sense but Obama himself acknowledges that disarmament is very unlikely to occur in his lifetime. That makes it easier to preach about how desirable it is as a concept, knowing full well he will not have to force through these ideas. Simi-

larly, closing down Guantanamo was a necessary political move because keeping it open would have further tarnished the U.S.’s image internationally. Obama is surely not the human being who has done the most to promote peace in his lifetime: There were a record 204 other candidates

for the award this year.

The Nobel panel knows this, and they must hope that this prize will spur Obama on to pursue his difficult global goals and validate their choice. Of course, after winning the Nobel Peace Prize, Roosevelt went on to have his image carved into Mount Rushmore.

Unlike for his Nobel Prize, Obama will actually have to prove himself before he would even be considered for that particular honor.

*Erasmus K. zu Ermgassen is an exchange student from the University of Cambridge in the Cambridge-MIT Exchange program.*



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# CAMPUS LIFE

## Trapped in Paradise

### Travels in Cuba

By Charlie Zien

"I need to use the phone," I told the man behind the front desk of the Havana hotel where I was staying. "Sir, it's \$2 a minute to call the U.S." I had \$5, enough for a 2.5 minute call home (or to eat that night). "This is an emergency!" I screamed, "Now let me use the fucking phone!"

"Not my problem," he responded. "You have to calm down or I'll have you sent to the immigration detention center." I had no idea what to do at this point, but I knew a trip to the detention center would not solve my problem.

This summer, I participated in MISTI (MIT International Science and Technology Initiatives), a program that sets up MIT students with internships in foreign countries. Having a tenuous yet passable grasp of Spanish, I decided on the MISTI-Mexico program.

As a U.S. passport holder, I am fortunate enough to have access to practically every country in the world. But I'm notoriously hard to satisfy, so I decided to go to one of the few countries that is not accessible from the U.S., but is easy to reach by way of Mexico City — Cuba.

Because of the U.S.'s trade embargo, my American bankcards would not work in Cuba and I would have to bring all my money ahead of time in pesos.

Knowing this, I asked my travel agent how much she recommended I bring. She told me Cuba was much cheaper than the U.S. (and Mexico), and that I should be fine with about

\$150 for four days of travel (I paid for my hotel ahead of time). Had I known then what I know now, I would have brought a lot more.

Soon after my arrival, I found out that my travel agent had misinformed me. Turns out Cuba has two different types of money — native money and tourist money. While Cuba may be cheap for Cubans (okay, not really — Cubans only make about \$15 a month), prices in tourist money are about what you would expect in Boston.

Now, anybody who has been a tourist in Boston knows that \$150 to pay for food, transit, and tourism for four days is a very short leash (and you can forget about bringing back any cool souvenirs). So I resigned myself to a budget trip — not what I'd had in mind considering the fact that this was one of those once-in-a-lifetime opportunities. But I didn't let this minor detail interfere with an otherwise great

*By the end of the trip I was satisfied, exhausted, and completely broke, save for the \$5 I had in my pocket. It was then that I found out about the \$25 departure fee required to leave the country.*

trip. By the end of the trip I was satisfied, exhausted, and completely broke, save for the \$5 I had in my pocket. It was then that I found out about the \$25 departure fee required to leave the country. In other words, I was trapped in Cuba. I spent that night running around the hotel, frantically trying to figure out how I could escape Castro's grips.

My guardian angel came in the form of a bus driver. He informed me that while the U.S. and Cuba do not maintain diplomatic relations, we do have a consulate in Havana. The bus driver took pity on me and offered to take me to the consulate, which was on his route, for free.

After a ten-minute scolding from the U.S. consul, I was able to contact my family, who wired some money to the State Department in Washington, which was then forwarded on to me in Havana. Relieved, I went to the airport, paid my \$25, and was on my way.

So, what did I learn from this? Well, not much. Despite the fact that getting stuck in Cuba was one of the scariest experiences of my life, I have no regrets. I am one of the few Americans who can say he has been to Cuba, which is awesome in its own right, but, more importantly, I have a great story to tell my grandchildren.

These types of surprises, good and bad, are what make travel so exciting for me. While not everyone has the good fortune of being trapped in a country with a communist dictatorship, traveling is guaranteed to bring about a meaningful experience ... in one form or another.



COURTESY OF CHARLIE ZIEN  
Charlie Zien '10 poses in front of one of the many jalopies that line the streets of downtown Havana on June 29.

# Brouhaha Rhythm

## The Sound of Silence

By Michael T. Lin  
CAMPUS LIFE EDITOR

Depending on who you ask, reactions to the idea of talking during a movie tend to be mixed. Some people feel like it's perfectly fine, others feel there should be a special level of hell for viola-tors of the "Silence is Golden" theatre policies. Some people don't mind so long as what's being said is funny or subtle, and some people prefer watching movies at home for the exact reason that they're at greater liberty to speak/eat loud snacks/go to the bathroom, among other things. Ask me sometime about my idea of splitting movie theaters into "making out" and "non-making out" sections so that the lip aficionados don't interfere with the film aficionados, and vice versa.

While plenty of people consider themselves amateur movie-talkers, only a handful get to go professional. The most widely-known (and perhaps most successful, though not the first) example is Mystery Science Theatre 3000, an

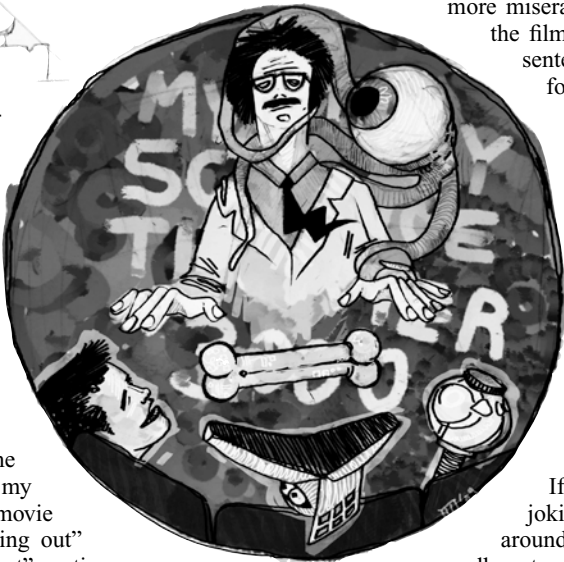


ILLUSTRATION BY ALISON O. MAOLUF

80's-90's television show centering on mocking or "riffing" on bad science fiction films. The food-for-thought du jour, then, is whether the quality of the movie makes it more legitimate for vocal disruption.

For example, when I saw *Mamma Mia!* at LSC, I probably would have been more miserable than merry if the film hadn't been presented in sing-along format, and in much the same vein, if I'd had to watch *Plan 9 From Outer Space*, a key contender for "Worst Movie Ever Made," without the former MST3K cast riffing on it (live), I probably could have lost my mind. If you think I'm joking, try walking around with your inner elbow to your face Dracula-style for an afternoon and see if anyone you interacted with that morning still thinks you're normal. For those of you who haven't seen *Plan 9*, let's just say that the filmmakers chose a less-than-brilliant means of dealing with the death of Bela Lugosi during shooting.

At the same time, even though the MST3K cast had the blessing of the audience to talk during the movie, one person ("That Guy") seemed to believe mistakenly that he did, as well. We relieved him of that assumption by the time the trailers were over, but it's nonetheless worth noting that, contrary to what one might expect, even a group of people intent on listening to people talk during a movie have standards for what they will and won't allow. Professionals talking for entertainment good, That Guy talking for self-aggrandizement bad, and so on.

Other parties with potentially legitimate reasons for talking during a movie are those directly related to the film, a la cast and crew commentary. Depending on how excited a person gets over behind-the-scenes information or listening to actors talk like themselves, one might find commentaries incredibly entertaining or incredibly dull. Personally, I like commentaries, but I can understand how some might not care for what's basically talking heads without the heads.

And, of course, some commentaries are more entertaining than others. The interaction of personalities is one possible draw — the film adaptation *Holes* has a commentary by the young stars of the film, and half a dozen

teenage boys in the same room is bound to be entertaining in one way or another. Alternately, sheer deliberate uniqueness can make a commentary worth hearing — *Dr. Horrible's Sing-Along Blog* has a musical commentary, which I'm hoping will become common practice if only because the thought of a horror movie being punctuated with sprightly song from the hapless victims strikes me as mildly hilarious.

I confess, I have often been guilty of talking during a movie, but in my defense, it's usually relevant to the movie. Usually. Granted, my moviegoing companions aren't always interested or amused, but I feel like whispering film trivia to a friend (as opposed to proclaiming to everyone in a three-seat radius my digestive response to what I had for dinner) has to have some legitimacy, at least in relative terms. Movie purists may disagree out of a desire for complete lack of distraction, but then you're looking at a ten-dollar trip to the movies just to be silent and antisocial. I could stand outside Fenway Park in a Yankees cap and get basically the same experience, keeping my ten bucks but forfeiting all protection against grievous bodily harm. Now, if you'll excuse me, I've got some work to do. *Daddy Day Camp* isn't going to laugh at itself, you know.

*Contrary to what one might expect, even a group of people intent on listening to people talk during a movie have standards for what they will and won't allow.*

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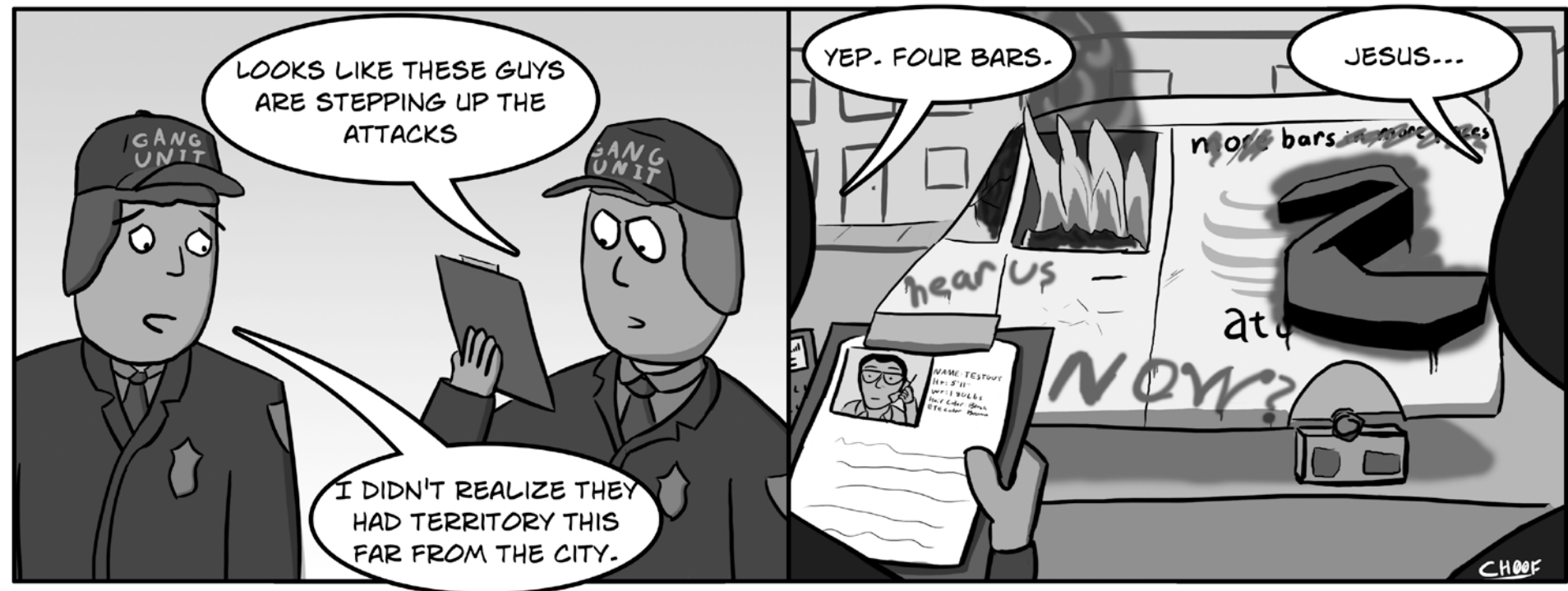
FUN

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PAGES

Steal My Comic

by Michael Ciuffo



STEALMYCOMIC.COM

PRIZE SUDOKU!

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9. The solution will be published next issue.

The Tech and theused.net are giving away a pair of tickets to see The Used on Oct. 23 at The House of Blues. Just be the first to complete the sudoku below, and drop it off at The Tech with your name and e-mail. We'll contact you if you've won the tickets. E-mail Arts Editor Balaji Mani at [arts@the-tech.mit.edu](mailto:arts@the-tech.mit.edu) once you have submitted your sudoku for more information.

1							3	4
	2	3	9	4				6
				7				1
4	8		7					
	6		1		2		4	
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5				3	8	1	6	
6	1							2

Crossword Puzzle

Solution, page 10

1	2	3	4	5	6	7	8	9	10	11	12	13
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59						60				61		
62					63				64			
65					66				67			

ACROSS

- 1 Swagger  
6 Pay period  
10 Salon treatment  
14 Inundated  
15 Corridor  
16 Burn soother  
17 Settle a score  
20 DDE opponent  
21 Crooner Bennett  
22 Coleridge's palace  
23 Pops in  
25 Columnist Barrett  
26 Outback hopper  
27 Ugli coat  
28 Baseball stat  
31 With 43A, settle a score  
35 Give way  
37 Indistinct  
38 Plains dwelling  
40 Stringed instrument  
41 Not quite right  
43 See 31A  
45 Chinese menu general  
46 Playwright Coward  
48 Beat a retreat  
49 TV chef Graham  
50 Open porch

- 54 Staff notation  
57 Presidential stopper  
58 Knack  
59 Settle a score  
62 Neutral color  
63 Stead  
64 In reserve  
65 Unwelcome stocking stuffer  
66 Raison d'\_\_  
67 Arctic coat

DOWN

- 1 Wondrous tales  
2 Peep from a tree  
3 "Midnight Cowboy" role  
4 Fleet letters  
5 Thanks anyway  
6 Querulous  
7 Cushy  
8 Will Ferrell film  
9 Antique car horn  
10 Port city on the Ganges  
11 Director Kazan  
12 Crude cross  
13 Diner's card  
18 On top of that  
19 Sweet treat  
24 Recites the rosary

- 25 Up and about  
27 Beat back  
28 Means of checking  
29 Common-interest group  
30 Gathering dust  
31 Come again?  
32 Ewes' guys  
33 Basso Pinza  
34 When pigs fly!  
36 Former Mrs. Trump  
39 Long-plumed waders  
42 Indy winner Tom  
44 Techno/hip-hop hybrid  
47 All-seeing one  
49 Afghani capital  
50 Trial setting  
51 Low-water mark  
52 Inferior merchandise  
53 Befuddled  
54 Oil cartel acronym  
55 Tex-Mex menu item  
56 Actress Banks  
57 Contender  
60 Scout Carson  
61 Santa \_\_ winds

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? a) Depression is a bunch of symptoms exhibited by weak people.

b) Depression is an unbearable suppression of brain activity that can strike anyone.

Straightening out all the misconceptions, the correct answer is 'b'. It's a concept we should all understand and remember, and here's why. Depression strikes millions of young adults, but only 1 out of 5 ever seeks treatment for it. Too many just drag themselves along or eventually seek relief through suicide. Why not treatment? Partly lack of awareness. Partly the unwarranted negative stigma. This is what needs fixing. This is where we need you to change your attitudes. It's an illness, not a weakness. And it's readily treatable. Spreading the word and making this common knowledge is everybody's assignment.

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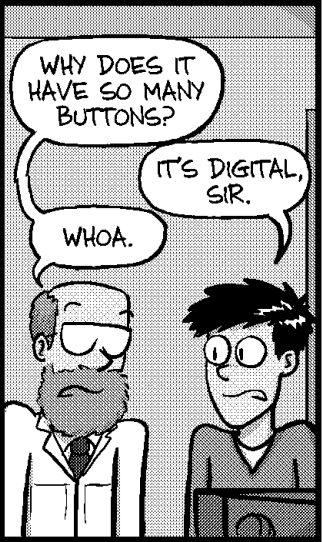
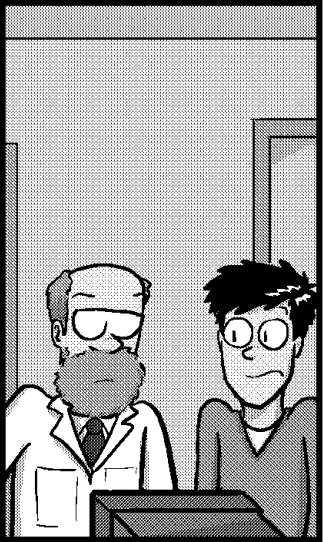
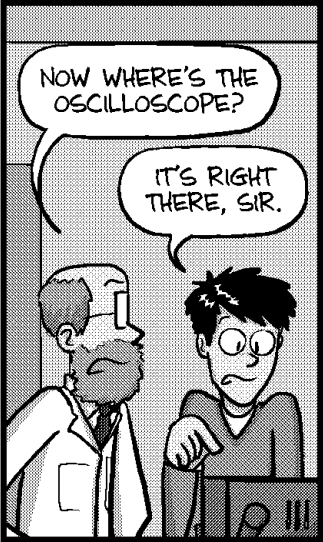
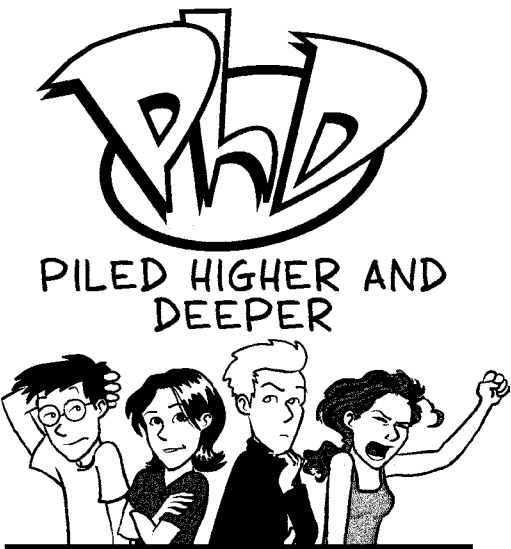


Doonesbury

BY GARRY TRUDEAU

Dilbert®

by Scott Adams



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Bonus Crossword

Solution, page 14

- ACROSS
- 1 Big cheese

10 Benchwarmer

15 Versatile

16 Square things

17 Scottish broadswords

18 Bad-mouth

19 Related group

20 Four seasons in Spain

21 Do business with

22 So far

23 Chandler's private eye

26 Indian lentil dish

27 "Havana" star

28 Pulled off

29 Gather bit by bit

32 Maximum limit

33 All there

34 Almost weightless

38 Cupid alias

39 Permit to

40 Loses locks

41 Frisco hill

42 Singing group

45 Couple

46 Certain sound from a
- snare drum

47 RR intersection

50 NY tennis event

52 Objective

53 Just as I suspected!

54 Strong, cotton thread

55 Dutch capital

58 Composer Bruckner

59 Pet peeve

60 Takes five

61 Vigilance
- DOWN
- 1 Slightly adhesive

2 Hardy's nickname

3 Factory

4 Hound-in-a-pound sound

5 Weapons of war

6 Tommy of "Gentlemen Prefer Blondes"

7 Dawn goddess

8 GPS heading

9 Billboard blurbs

10 Lustrous fabric

11 PC key

12 Author of "James and
- the Giant Peach"

13 Spotless

14 Eyes, beautywise

21 Make off with

24 Tracks down

25 Norwegian saint

27 Bolger and Haley's co-star

29 Of the endocrine system

30 Long ride?

31 Flattery and success, e.g.

33 Shot in the dark

35 Maximum poker bet

36 Strike one as

37 Point of contact

42 Putting areas

43 Pure and virtuous

44 Lollygag

47 Foster in pictures

48 Scorches

49 Weighty volumes

51 Novel underpinning

55 Arab cloak

56 Blanc of cartoons

57 Silver or Perlman

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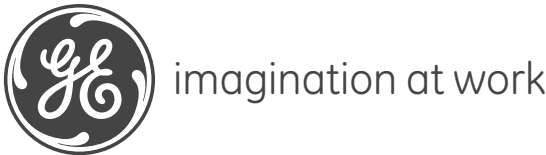


ARFA ALIAZI—THE TECH  
Internationally certified mehndi artist, Heather Caunt-Nulton, applies a henna tattoo to the hand of Kavitha Sivasailam G at the Mela Festival hosted by the Association for Indian Development (AID) on Oct. 11 in Rockwell Cage. AID is a volunteer organization that supports grassroots organizations in India.



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# New Ed. Contains Even More Examples For Code

CLRS, from Page 1

ability.

The new edition is much more focused on working through examples in order to make it more accessible to practitioners and students. Every algorithm in the book has been implemented and tested by Cormen. The authors have aimed to make it easy for the readers to implement and test their own code based on the examples in the books by providing easy-to-learn pseudocode for all of the new material.

The main goal of the new edition is to put the current explosion in algorithms research in a palatable form for both academia and industry. "The more students and practitioners can become familiar with algorithms, the better the code we'll see, the more value will be created in our economy, and the more fun people will have with the notions of computing and computer science," Leiserson told the MIT Press.

Cormen and Stein are professors of computer science at Dartmouth and Columbia, respectively.

**Solution to Crossword**  
from page 7

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# UA Summary Site Gets 19,000 Page Views, Over 500 Comments

Task Force, from Page 1

reading and thinking about recommendations. This method made it more accessible for a student who might not have two hours to make their voice heard,” said UA President Michael A. Bennie ’10.

One of the proposals that got a strong reaction from the student body was that of changing the add/drop date to an earlier time in the year. While the overwhelming negative student sentiment to the issue helped the UA gauge undergraduate reaction, the direct feedback via comments was also immensely helpful to the UA, said Bennie.

One student left a comment that said “I think that having late add and drop dates is part of what makes the MIT education so malleable and customizable... for those students that do use it, it is a valuable amenity to ensuring that their schedules suit them. Likewise, MIT is about learning; if a student wants to learn material, then we shouldn’t discriminate based on whether or not they can handle the time commitment or otherwise later in the semester.”

Aside from voting statistics and student feedback, the UA also used Google Analytics to measure the effectiveness of the summaries. In the past four days, the UA gleaned the following interesting statistics: there were 19,000 total page views, over 500 comments, over 750 votes, and an average of 9 recommendations read by each visitor.

In the next week, the report will be circulated to three core groups. The first consists of those who are responsible for making the decisions or delegating tasks to committees: the Chancellor, the Provost, and the Executive Vice President. The second group is the Planning Task Force Coordination Committee, who will consider the UA’s report for the final Planning Task Force Report, which should be published by the end of the month. The third group is comprised of the Chairs of the Institute and Presidential Committees.

Following the final report by the Planning Task Force, recommendations will be tasked to particular individuals who will be responsible for setting deadlines for a project’s implementation.

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✱ Thursday, October 29  
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[web.mit.edu/invent/student](http://web.mit.edu/invent/student)



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# Students Train To Climb an Everest of Digital Data

By Ashlee Vance  
THE NEW YORK TIMES

It is a rare criticism of elite American university students that they do not think big enough. But that is exactly the complaint from some of the largest technology companies and the federal government.

At the heart of this criticism is data. Researchers and workers in fields as diverse as bio-technology, astronomy and computer science will soon find themselves overwhelmed with information. Better telescopes and genome sequencers are as much to blame for this data glut as are faster computers and bigger hard drives.

While consumers are just starting to comprehend the idea of buying external hard drives for the home capable of storing a terabyte of data, computer scientists need to grapple with data sets thousands of times as large and growing ever larger. (A single terabyte equals 1,000 gigabytes and could store about 1,000 copies of the Encyclopedia Britannica.)

The next generation of computer scientists has to think in terms of what could be described as Internet scale. Facebook, for example, uses more than 1 petabyte of storage space to manage its users' 40 billion photos. (A petabyte is about 1,000 times as large as a terabyte, and could store about 500 billion pages of text.)

It was not long ago that the notion of one company having anything close to 40 billion photos would have seemed tough to fathom. Google, meanwhile, churns through 20 times that amount of information every single day just running data analysis jobs. In short order, DNA sequencing systems too will generate many petabytes of information a year.

"It sounds like science fiction, but soon enough, you'll hand a machine a strand of hair, and a DNA sequence will come out the other side," said Jimmy Lin, an associate professor at the University of Maryland, during a technology conference held here last week.

The big question is whether the person on the other side of that machine will have the wherewithal to do something interesting with an almost limitless supply of genetic information.

At the moment, companies like I.B.M. and Google have their doubts.

For the most part, university students have used rather modest computing systems to support their studies. They are learning to collect and manipulate information on personal computers or what are known as clusters, where computer servers are cabled together to form a larger computer. But even these machines fail to churn through enough data to really challenge and train a young mind meant to ponder the megascale problems of tomorrow.

"If they imprint on these small systems, that becomes their frame of reference and what they're always thinking about," said Jim Spohrer, a director at I.B.M.'s Almaden Research Center.

Two years ago, I.B.M. and Google set out to change the mindset at universities by giving students broad access to some of the largest computers on the planet. The companies then outfitted the computers with software that Internet companies use to tackle their toughest data analysis jobs.

And, rather than building a big computer at each university, the companies created a system that let students and researchers tap into giant computers over the Internet.

This year, the National Science Foundation, a federal government agency, issued a vote of confidence for the project by splitting \$5 million among 14 universities that want to teach their students how to grapple with big data questions.

The types of projects the 14 universities have already tackled veer into the mind-bending. For example, Andrew J. Connolly, an associate professor at the University of Washington, has turned to the high-powered com-

puters to aid his work on the evolution of galaxies. Mr. Connolly works with data gathered by large telescopes that inch their way across the sky taking pictures of various objects.

The largest public database of such images available today comes from the Sloan Digital Sky Survey, which has about 80 terabytes of data, according to Mr. Connolly. A new system called the Large Synoptic Survey Telescope is set to take more detailed images of larger chunks of the sky and produce about 30 terabytes of data each night. Mr. Connolly's graduate students have been set to work trying to figure out ways of coping with this much information.

Purdue, meanwhile, looks to carry out techniques used to map the interactions between people in social networks into the biological realm. Researchers are creating complex diagrams that illuminate the links between chemical reactions taking place in cells.

A similar effort at the University of California, Santa Barbara, centers on making a simple software interface — akin to the Google search bar — that will let researchers examine huge biological data sets for answers to specific queries.

Mr. Lin has encouraged his students to illuminate data with the help of Hadoop, an open-source software package that companies like Facebook and Yahoo use to split vast amounts of information into more manageable chunks.

One of these projects included a deep dive into the reams of documents released after the government's probe into Enron, to create an analysis system that could identify how one employee's internal communications had been connected to those from other employees and who had originated a specific decision.

Mr. Lin shares the opinion of numerous other researchers that learning these types of analysis techniques will be vital for students in the com-

ing years.


"Science these days has basically turned into a data-management problem," Mr. Lin said.

By donating their computing wares to the universities, Google and I.B.M. hope to train a new breed of engineers and scientists to think in Internet scale. Of course, it's not all good will backing these gestures. I.B.M. is looking for big data experts who can complement its consulting in areas like health care and financial services. It has already started working with customers to put together analytics systems built on top of Hadoop. Meanwhile, Google promotes

just about anything that creates more information to index and search.

Nonetheless, the universities and the government benefit from I.B.M. and Google providing access to big data sets for experiments, simpler software and their computing wares.

"Historically, it has been tough to get the type of data these researchers need out of industry," said James C. French, a research director at the National Science Foundation. "But we're at this point where a biologist needs to see these types of volumes of information to begin to think about what is possible in terms of commercial applications."



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Photo by Layla M., Class of 2011

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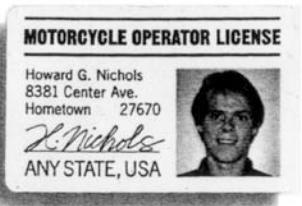


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*Boston magazine, September 2009*

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# Study Finds a Higher Rate of Imprisonment Among Dropouts

By Sam Dillon  
*THE NEW YORK TIMES*

On any given day, about one in every 10 young male high school dropouts is in jail or juvenile detention, compared with one in 35 young male high school graduates, according to a new study of the effects of dropping out of school in an America where demand for low-skill workers is plunging.

The picture is even bleaker for African-Americans, with nearly one in four young black male dropouts incarcerated or otherwise institutionalized on an average day, the study said. That compares with about one in 14 young, male, white, Asian or Hispanic dropouts.

Researchers at Northeastern University used census and other government data to carry out the study, which tracks the employment, workplace, parenting and criminal justice experiences of young high school dropouts.

“We’re trying to show what it means to be a dropout in the 21st century United States,” said Andrew Sum, director of the Center for Labor Market Studies at Northeastern, who headed a team of researchers that prepared the report. “It’s one of

the country’s costliest problems. The unemployment, the incarceration rates — it’s scary.”

A coalition of civil rights and public education advocacy groups and a network of alternative schools in Chicago commissioned the report as part of a push for new educational opportunities for the nation’s 6.2 million high school dropouts.

“The dropout rate is driving the nation’s increasing prison population, and it’s a drag on America’s economic competitiveness,” said Marc H. Morial, the former New Orleans mayor who is president of the National Urban League, one of the groups in the coalition that commissioned the report. “This report makes it clear that every American pays a cost when a young person leaves school without a diploma.”

The report puts the collective cost to the nation over the working life of each high school dropout at \$292,000. Mr. Sum said that figure took into account lost tax revenues, since dropouts earn less and therefore pay less in taxes than high school graduates. It also includes the costs of providing food stamps and other aid to dropouts and of incarcerating those who turn to crime.

Daniel J. Losen, a senior associate at the Civil Rights Project at the University of California, Los Angeles, said the study was consistent with other economic studies of the dropout crisis, though he said the methodology of its cost-benefit analysis “lacked transparency.”

“The report’s strength is that it reveals in clear terms that there’s a real crisis with the high numbers of young, especially minority males, who drop out of school and wind up incarcerated,” Mr. Losen said.

Previous studies have come up with estimates of the same order of magnitude on the social cost of low graduation rates. A 2007 study by Teachers College, Princeton and City University of New York researchers, for instance, estimated that society could save \$209,000 in prison and other costs for every potential drop-

out who could be helped to complete high school.

The new report, in its analysis of 2008 unemployment rates, found that 54 percent of dropouts ages 16 to 24 were jobless, compared with 32 percent for high school graduates of the same age, and 13 percent for those with a college degree.

Again, the statistics were worse for young African-American dropouts, whose unemployment rate last year was 69 percent, compared with 54 percent for whites and 47 percent for Hispanics. The unemployment rate among young Hispanics was lower, the report said, because included in that category were many illegal immigrants, who compete successfully for jobs with native-born youths.

The unemployment rates cited for all groups have climbed several points in 2009 because of the recession, Mr. Sum said.

Young female dropouts were nine times more likely to have become single mothers than young women who went on to earn college degrees, the report said, citing census data for 2006 and 2007.

The number of unmarried young women having children has increased sharply in some communities in part, Mr. Sum said, because large numbers of young men have dropped out of school and are jobless year round. As a result, young women do not view them as having the wherewithal to support a family.

“None of these guys can afford to own a home, they just don’t have any money,” he said. “And as a result, any time they father a child it’s out of wedlock. It wasn’t like this 30 years ago.”

He cited his hometown, Gary, Ind., as an example. “Back in the 1970s, my friends in Gary would quit school in senior year and go to work at U.S. Steel and make a good living, and young guys in Michigan would go to work in an auto plant,” he said. “You just can’t do that anymore. Today, you have a lot of dropouts who are jobless year round.”

### Solution to Bonus

from page 8

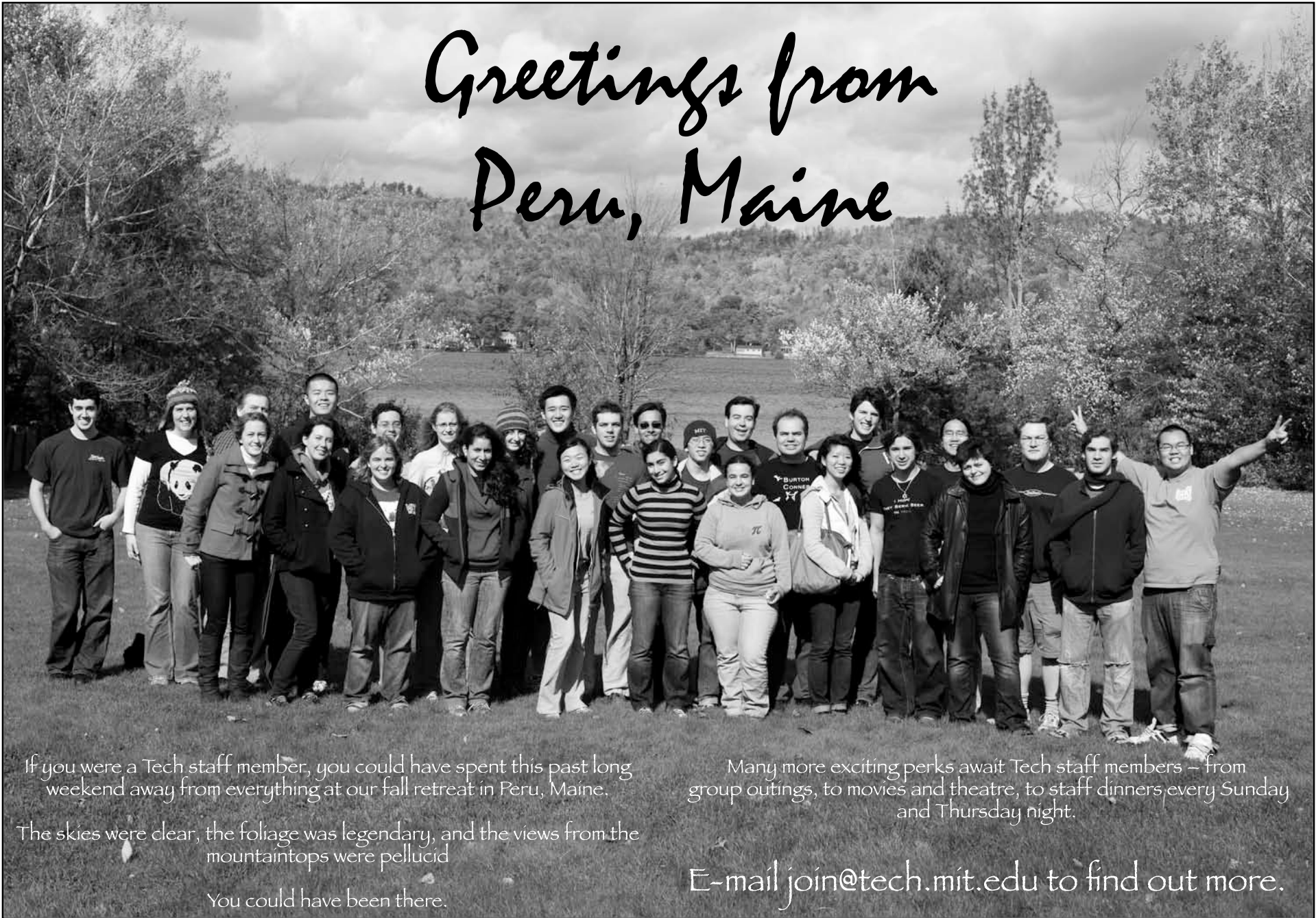
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SCOREBOARD			
Men's Cross Country		Men's Soccer	
Saturday, October 10, 2009		Saturday, October 10, 2009	
NEICAAA Championship		Springfield College	
MIT		MIT (7-5)	
		29th of 47	
MIT		1	
Women's Cross Country		Women's Soccer	
Saturday, October 10, 2009		Saturday, October 10, 2009	
NEICAAA Championship		Wellesley College	
MIT		MIT (6-4-1)	
		4th of 49	
MIT		1	
Field Hockey		Women's Tennis	
Saturday, October 10, 2009		Saturday, October 10, 2009	
Wellesley College		Smith College	
MIT (9-4)		MIT (3-3)	
		5	
MIT		6	
Football		Women's Volleyball	
Saturday, October 10, 2009		Friday, October 2, 2009	
Curry College		Bridgewater State College	
MIT (1-4)		MIT (18-4)	
		20	
MIT		3	
Sailing		Men's Water Polo	
Sunday, October 11, 2009		Saturday, Sept. 26, 2009	
Moody Trophy		Iona College	
MIT		MIT (4-11)	
		11th of 17	
MIT		9	

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School of Engineering contact: Maria Marangiello, x3-8012, [mariam@mit.edu](mailto:mariam@mit.edu)  
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7PM - 12AM

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DOORS OPEN AT 6:45PM. FOOD SERVED AT 7PM.

AFTER PARTY WITH DJ OBI FROM 10:30 PM!!

SPORTS

Curry College Nabs MIT Football Team in Strong Fourth Quarter

By Russell Spivak  
TEAM MEMBER

The football team lost its game against Curry College on Saturday 20-10.

The game began as a defensive duel, as both MIT and Curry were only able convert a field goal apiece after two drives. MIT got on the scoreboard first, as tight end Justin A. Kresz '12 took a pass from Kyle T. Johnson '11 down to the Curry eleven yard line. A defensive stop by the Colonels left Corey Garvey '10 to convert a 36-yard field goal with 1:26 left in the first.

The game was evened up at 3 by a career-long 41-yard field goal by Curry's Matt Alksninis, who cleared the uprights with 13:40 left to go in the 2nd quarter after a 32-yard drive that put Curry to the MIT 23 yard line.

The ensuing possession found the Cardinal and Grey recovering the lead after a 30-yard kickoff return by Brian P. Doyle '11 off of a fake reverse ignited the Engineers. A key reception by Nathaniel C. Forbes '12 on third-and-eight allowed the Engineers to continue driving. Michael P. Fitzgerald '10 then had his second catch of the day, diving into the endzone to put

MIT up by 6. The lead was increased to 7 with a successful point-after attempt by Peter W. Gilliland '12.

Curry responded vigorously, going with an air attack. With less than 7 minutes left in the quarter, however, Curry quarterback Zach Cavanaugh scrambled up the sidelines from 27 yards out after a foiled pass play to knot the game at 10 going into halftime.

The third quarter was devoid of scoring, but contained plenty of drama. Curry appeared to be taking an edge over MIT, as they drove over 60 yards. The Engineer defense stifled Curry's mounting momentum as Brian H. Mickle '10 forced and recovered a fumble.

The fourth quarter, however, was a different story. Curry mounted its game winning drive with successive rushes of short yardages, eating away at the clock and the defense's stamina. Cavanaugh eventually led the Colonels down to the MIT 16 yard line and Alksninis easily cleared the uprights for the go ahead field goal.

The Engineers' following possession started out well as Forbes got the kickoff to the Curry 44, but a crucial sack on Johnson on 4th-and-10 turned the game in favor of Curry, who marched down the field to score on a

12 yard rush right up the middle.

Captain DeRon M. Brown '10 ended the game with a total of 203 yards, the second consecutive week he has passed the 200 yard mark, while Johnson ended 9-for-17 with 105 yards, 58 of which went to Fitzgerald. The Engineer defense was led by Gilliland with 14 tackles, Kristopher C. Weaver '12 and Patrick T. Jupe '12 both had 10, and captain Alexander F. Rubino '10 finished with 8 tackles including 1.5 for losses.

After the game, the team was disappointed at the outcome, but they recognize both the quality of their opponent and the use of this game as a foundation to work on.

"Curry is still a good team," said captain Garth S. Grove '10, "and we were able to go toe to toe with them. Although the outcome was not what we hoped, it proves that we can hold our own against any team in the league. The loss is just going to motivate the players and coaching staff to work that much harder. The rest of the season will show this team's character."

MIT is now 1-1 in Divisional play in the New England Football Conference Boyd Division and will continue their campaign next week against Western New England College at 1 p.m.

Women's Cross Country Collects Best Finish Ever at All-New England Meet

The MIT women's cross country team entered this past weekend with its highest national ranking in program history, as it rose to No. 4 in all of Division III. Competing against the tops teams in New England from across all Divisions, the Engineers more than lived up to their ranking, finishing fourth as a team. Jacqueline M. Wentz '10 led the way for the Cardinal and Grey with a third-place finish, the best individual result in Institute history at the All-New England Meet.

A pair of Division I runners were the only competitors to complete the Franklin Park course faster than Wentz, who set a new program standard at the Engineers' home venue with her time of 18:06. Maria J. Monks '10 also landed in the top 20, just the fifth such occurrence for MIT, with a time of 18:24. Alina E. Gatowski '11 (18:48) finished 47th overall. A pair of freshman were the final scoring harriers for Tech, as Melissa A. Showers '13 (19:01) came home in 63rd and Brooke C. Johnson '13 (84th) broke the tape in 19:17.

The Cardinal and Grey totaled 217 points for the best team result ever in this meet. The Engineers' previous best was a sixth-place showing in 2007. Brown won the meet with 130 points.

MIT will be back in action next weekend at the Plansky Invitational at Williams College on Saturday, October 17.

—Greg McKeever, DAPER Staff

Women's Soccer Holds Strong for 2-1 Win over Wellesley

MIT's women's soccer took on the squad from Wellesley College in a New England Women's and Men's Athletic Conference (NEWMAC) matchup this weekend at Roberts Field. While Wellesley controlled most of the second-half action, the Engineers held on for a 2-1 victory.

In the 17th minute, MIT's Lauren R. Hernley '11 sent a pass through two Wellesley defenders to find Jean E. "Liz" Theurer '10 open on the other side. Wellesley keeper Katie Martore charged out of the goal to break up the charge, but Theurer's loft sent the ball just out of Martore's reach and bouncing into the goal.

The Engineers opened up the lead in the 37th minute. Collecting a pass from Kathryn A. Pesce '10, Alisha D. Lussiez '12 broke from the defense and rushed the goal, again forcing Martore to step away from the net. Martore barely missed Lussiez's shot which caught the inside of the right post and bounced into the net.

Wellesley applied strong pressure at the end of the first half and carried that momentum coming out of the break. They controlled much of the early second half and in the 60th minute, Chelsea-Ann Patry's pass found senior Catherine Caruso open in the penalty area. Caruso fired a blast from ten yards past goalie Katy Olesnavage '11 to close the gap to 2-1.

Wellesley, backed by a vocal contingent of spectators, kept pressure on MIT, but was unable to capitalize on any other chances. For Olesnavage, the match marked her first full game for the Engineers and her second win of the season. Wellesley's Martore tallied six saves on the game but suffered her first conference loss.

MIT (6-4-1, 2-1-1 NEWMAC) travels to New Haven, Connecticut to face the United States Coast Guard Academy in its next game on Tuesday, October 13.

—Paul Blascovich, DAPER Staff



MELISSA RENÉE SCHUMACHER—THE TECH

Melissa A. Showers '13 pulls ahead of runners from Brown and Sacred Heart during the Women's cross country race on Saturday. MIT went on to finish 4th out of 49 teams.

UPCOMING HOME EVENTS

Tuesday, October 6, 2009  
Women's Tennis vs. Wheaton College

4 p.m., duPont Courts

SEE SCOREBOARD, PAGE 15



VIBIN KUNDUKULAM—THE TECH

Nikola B. Otasevic '12 lobs the ball during MIT's game against the Iona College Gaels on Saturday. The Engineers won 9-6, giving MIT their fourth win of the season.



COLE HOUSTON—THE TECH

Stephanie D. Cooke '13 guards a Wellesley team member during the women's soccer game on Saturday. The Engineers won 2-1.